

STORM DRAINAGE CONSTRUCTION

STORM DRAINAGE PIPE

The following materials are acceptable:

1. Concrete

- 8"(minimum) - 24" diameter shall be unreinforced and shall conform to ASTM C-14 Table II, extra strength, rubber gasketed, and is required to pass air test.
- Larger than 24" shall be reinforced. Class shall be determined by the Design Engineer. Minimum class shall be CL 2, rubber gasketed, and is required to pass air test.
- Minimum cover over the pipe from outside top of pipe to finished grade is 18 inches.

2. PVC

- 6" and larger diameters shall meet ASTM 3034, be rubber gasketed, and is required to pass air test and a mandrel test.
- Minimum cover over the pipe from outside top of pipe to finished grade is 18 inches and the maximum cover is 12 feet.

3. Ductile Iron

- 6" and larger diameters shall be class 52, and is required to pass air test.
- Minimum cover over the pipe from outside top of pipe to finished grade is 12 inches.

4. Corrugated Polyethylene Pipe (double-walled HDPE)

- 4" - 10" diameter shall meet the requirements of AASHTO M-252 type S. 12" - 24" diameters shall meet the requirements of AASHTO M-294 type S. Sizes greater than 24" diameter shall be subject to project approval by City of Redmond Stormwater Engineer.
- All pipe shall be subject to mandrel testing (size = 90% of nominal diameter) and may be required to pass an air test in accordance with Section 7-04.3 E & F of the WSDOT Standard Specifications.

- On site storage requires a flat level surface. Pipe shall be stored in shipping bunks and not exposed to natural light for extended periods.
- Minimum cover over the pipe from outside top of pipe to finish grade is 18 inches.

5. Corrugated Aluminum Pipe

- 8" and larger diameters shall meet AASHTO M-196, M-197, M-211, and M-219, Helical, Gauges and types shall be shown on the plans.
- Minimum cover over the pipe from outside top of pipe to finished grade is 18 inches.

6. Other materials as approved by the City of Redmond Stormwater Engineer.

BACKFILL

All backfill within existing improved rights-of-way shall be Control Density Fill, see Standard Detail #201.

If control density fill is not required, backfill shall be crushed surfacing as per section 9-03.9(3) of the Standard Specifications.

STRUCTURES

Catch basins shall be constructed in accordance with the Standard Details unless otherwise shown on plans or noted in the Standard Specifications.

Handholds on riser or adjustment section shall have 3" minimum clearance. Steps in structure shall have 6" minimum clearance.

All reinforced cast in place concrete shall be class 4000. All precast concrete shall obtain a minimum of 4000 PSI @ 28 days.

Precast bases shall be furnished with cutouts or knockouts. Knockouts shall have a wall thickness of 2" minimum.

All storm structures shall be grouted water tight, including under frames, manhole barrel and riser sections, and pipe collars.

All cast in place structures require city approval of structural design.

Match crowns on all inlet and outlet pipes, as a minimum.

Type I structures may be used for depths, top to invert, of 4 feet or less.

FRAMES, GRATES & COVERS

Solid covers for structures, where permitted, shall be 24" diameter, with "DRAIN" cast in the cover in 2" letters, conforming to Olympic Foundry Co. MH43, or approved equal.

Drainage structures not within paved area shall have locking lids.

Frames, grates and covers shall not reference any jurisdiction except the City of Redmond.

Raised designs other than the diamond design may be used if approved by the engineer.

All grates shall be ductile iron.

20" x 24" Vaned grates, Standard Drawing No.619, and frame, standard Drawing No. 626, shall be used on all catch basin inlets in public owned and maintained systems.

Grates in private systems shall conform to Olympic Foundry Co. #SM50G or equal for slopes less than 5%. Where slopes exceed 5%, use Olympic Foundry Co. #SM50VG, or approved equal, in accordance with the Standard Detail.

Frames for catch basins and inlets shall be of cast iron or ductile iron conforming to Olympic Foundry Co. SM50, or approved equal, except through-curb inlet frames which shall conform to Olympic Foundry Co. SM52, or approved equal.

Manhole structures not in paved areas require 3 feet concrete apron.